Standards for VoIP in the Enterprise

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VoIP Networks

IP Network

Gatekeepers, proxies, redirects, location servers, authentication servers, border elements, etc.

Gateways to other networks
The Need for Evolution

- Many enterprises have substantial investment in traditional voice networks
- Fork-lift upgrade can be too costly and risky, particularly for larger networks
- Desire to evolve to exploit common infrastructure and new applications
- Must maintain business-critical functionality
- Desirable to maintain other frequently used functions
• New VoIP additions need to interwork with existing PBXs
• Need to interwork signalling, numbering, etc.
• **IP wide area network used to interconnect different parts of PISN**

• **Need to convey PISN signalling, numbering etc. across IP network - tunnelling**
Ecma Work on VoIP

- QSIG standards were developed in Ecma and led to the publication of ISO/IEC international standards
- Other work on traditional enterprise voice networks includes architecture, numbering and addressing
- Attention now focused on VoIP and multimedia, in particular evolution of traditional networks to IP
- Standards produced on tunnelling QSIG over IP and on interworking between QSIG and signalling systems used on IP networks
- Protocol-agnostic as far as IP network is concerned - both H.323 and SIP addressed
Signalling

- **H.323 and SIP are the peer-to-peer protocols for IP networks**
- **MGCP and MEGACO** - not considered of direct relevance
- **Ecma is concerned with applying signalling standards to enterprise environments** - protocols themselves are responsibility of ITU-T and IETF
  - In some respects similar to the IETF SIPPING group, but focusing on the enterprise
- **If shortcoming in protocol detected, will work with ITU-T or IETF to correct**
- **Production of interworking and tunnelling standards**
Identification

- **PISN identifies users by numbers or addresses**
  - Private numbering plan and/or E.164
  - Separate directory service to get number from name
  - Can supply name for display purposes
  - By default numbers are screened for authenticity, except when crossing network boundaries
  - Presentation restriction capability for privacy
- **H.323 similar, but can also support URLs**
- **SIP uses URLs exclusively**
  - SIP or telephony URL in particular
  - Separate Privacy RFC from IETF
- **Interworking raises issues**
Features (QSIG/ H.323)

- **QSIG has many features - most PBX features can be networked where applicable**
  - Many of less importance in IP network - achievable by alternative means

- **H.323 has some features - H.450.x**
  - Generally the most important ones, e.g., transfer, diversion, call completion
  - Good compatibility with QSIG - easy interworking
Features (SIP)

- **SIP has minimal features, BUT:**
  - Provides toolkit (methods, headers) from which features can be assembled
  - Call transfer, history information (for call diversion), presence, instant messaging under study
  - Message Waiting Indication about to be published
Mobility

- QSIG has support for terminal mobility (cordless) and for user mobility
- H.323 and SIP have an intrinsic mobility capability within a “zone” (gatekeeper or proxy)
- Inter-zone mobility being studied
  - ITU-T SG16 has recently approved H.501, H.510 and H.530 in support of mobility
- Ecma to study mobility in enterprise environment, with emphasis on services and applications rather than underlying technology
• Security and QoS big issues for IP network but not for traditional networks

• Security handled separately by ITU-T for H.323 (using H.235) and by IETF for SIP (using general purpose security mechanisms)

• QoS largely independent of signalling protocol

• Security and QoS have little impact on interworking

• Security and QoS both important, but considerations not necessarily different in the enterprise
Ecma work on QSIG/H.323

Interworking:

- Basic call interworking (ECMA-332)
- Interworking of the generic functional protocol for support of supplementary services (ECMA-307)
- Interworking of call transfer (ECMA-308)
- Interworking of call diversion (ECMA-309)
- Interworking of call completion (ECMA-336)

Tunnelling (based on H.323 annex M.1):

- ECMA-333

THIS IS AVAILABLE TODAY, free of charge from http://www.ecma-international.org
Ecma work on QSIG/SIP

- Basic call interworking - **ECMA-339** corresponding Internet draft undergoing approval as Best Current Practice RFC
- Tunnelling - Final draft Ecma Standard
- Identification - **ECMA TR/86**
- Call transfer - Draft available
- Call diversion - Draft available
- Mobility - Draft TR available

THIS IS HARDER – IT’S STILL ONGOING
Future focus in Ecma

- **Services and applications in the enterprise**
  - What do customers want?
  - What is needed to support this?
  - What further standardization is needed to achieve this?

- **Service platforms**
  - Service control architectures
  - Service provisioning across multiple networks
  - User customization
  - User presence, availability and messaging
  - Impact of user mobility

- Interoperability with carrier networks and service providers

- Other aspects: security / QoS / reliability / performance as applied to the enterprise
Conclusions

• Evolution of the voice network is important to many enterprises

• Traditional and IP networks will continue to co-exist in the enterprise

• Exploitation of new services and applications in IP network

• But needs to be complemented by extending existing services to IP and mixed environments

• Ecma is working to ensure appropriate standards are in place

THANK YOU